MANAUGH POND

2004 Fish Management Report

Larry L. Lehman
Fisheries Biologist

Clinton R. Kowalik
Assistant Fisheries Biologist

FISHERIES SECTION
INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE
I.G.C. South, Room W273
402 West Washington Street
Indianapolis, Indiana 46201

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INTRODUCTION

Managh Pond is a small impoundment (approximately 2 acres) located in Olive and Ray Managh Park in Austin. The Austin Lions Club generously supplied money and labor to develop the park and renovate the pond for the town which owns and manages the park. Following a request by the Town Council, the Division of Fish and Wildlife (DFW) agreed to manage the fish populations in Managh Pond for the town.

Game fish were stocked into Managh Pond by DFW personnel in November 1995 (Table 1). Due to a misunderstanding, a member of the Lions Club also stocked largemouth bass, bluegill, channel catfish, black crappie, and fathead minnow fingerlings into the pond in the fall of 1995. He also stocked an estimated 100 adult largemouth bass and 80 adult bluegill in the spring of 1996.

A spot-check survey was conducted August 13, 1996 to verify the survival of largemouth bass, bluegill, and redear sunfish. Although more fish were stocked than was necessary to populate a small pond like this one, Managh Pond was providing fishing opportunities for bass, panfish, and catfish (Lehman 1997). The purpose of this fish management survey was to update information on the fish populations since the spot-check survey in 1996.

METHODS

This survey was conducted on July 12 to 14, 2004 as part of DFW Work Plan 202478 that covers management of fish populations in impoundments. Some physical and chemical characteristics of the water were measured in the deepest area of the impoundment. Submersed aquatic vegetation was sampled on July 20, 2004 using guidelines written by Pearson (2004).

Fish were collected by DC-electrofishing the entire shoreline at night with two dippers for 0.50 h. One trap net and two experimental-mesh gill nets were also fished overnight. A GPS was used to record the location of the limnological data collection site, fish collection sites, and aquatic vegetation sample sites.

All fish collected were measured to the nearest 0.1 in TL. Average weights for fish by half-inch groups for Fish Management District 8 were used to estimate the weight of bluegill, largemouth bass, redear sunfish, hybrid sunfish, black crappie, white crappie, and warmouth in the sample. Other fishes were weighed in the field. Fish scale samples were taken from selected species for age and growth analysis. Electrofishing catch rates include all age groups of fish unless stated otherwise. PSD values were calculated using fish caught by electrofishing.

RESULTS AND DISCUSSION

Manaugh Pond was at normal pool. A maximum depth of 11 ft was found between the island and the outlet. Sunlight penetration into the pond's green water, as measured with a Secchi disk, was 1.8 ft. As is typical for southern Indiana impoundments in the summer time, Manaugh Pond was thermally stratified into warm and cold layers. Dissolved oxygen concentrations were not adequate for fish survival below 4 ft. This stratified and anoxic condition is corrected each year during fall turnover when the water in the pond is mixed by the wind and falling temperatures.

The typical kinds of submersed rooted plants were absent in Manaugh at the time of the vegetation survey. Filamentous algae was the only submersed vegetation collected. A small amount of creeping water primrose, which was introduced by park personnel, was present along the shore.

A total of 813 fish, representing 11 species and naturally occurring hybrid sunfish, was collected during this survey. Total estimated weight of the fish sample was approximately 95 lbs. Species collected in this survey that were not collected in 1996 include golden shiner, green sunfish, black crappie, white crappie, black bullhead, and longear sunfish. A large common carp was observed, but not collected.

Bluegill ranked first by number (77%) and by weight (48%) in the survey sample. They ranged in length from 0.9 to 7.0 in, averaging 4.4 in. Back-calculated lengths at annulus formation indicate Manaugh bluegill are reaching 6.0 in during their fourth year of growth (Figure 1), which is comparable to the average for southeastern Indiana. Of the 628 bluegill collected in this sample, 9% were 6.0 in (quality size) or longer.

Balanced fisheries exhibit bluegill PSD values that range from 20 to 60 (Anderson and Neumann 1996). The PSD for Manaugh bluegill caught by electrofishing is only 5, which is well below the desired range. Many bluegill (44%) were caught in the trap net. Even if these bluegill are included in the calculation, the PSD rises only to 11. These low PSD values indicate that too many 3.0 to 6.0-in bluegill are present compared to the number of quality-size bluegill.

The Bluegill Fishing Potential Index (BFPI) is an objective rating system that was developed in Indiana to assess bluegill fishing in lakes and ponds (Ball and Tousignant 1996). Out of a possible 40 points in the index, the current bluegill fishery scored 15 points, which is in the "fair" category. Although bluegill were abundant, an undesirable PSD and a lack of bluegill longer than 8.0 in were the major reasons for the BFPI score in Manaugh Pond.

Largemouth bass ranked second by number (8%) and by weight (35%) in the sample. They ranged in length from 2.0 to 18.3 in, averaging 7.5 in. Bass growth is above average for

southeastern Indiana (Figure 2). Some bass are reaching the legal size limit of 14.0 in during their fifth year of growth. Of 65 bass collected in this survey, five (8%) were 14.0 in or longer.

Balanced fisheries exhibit largemouth PSD values that range from 40 to 70 (Anderson and Neumann 1996). The PSD value of 92 for Manaugh bass is well above the range. The bass population appears to be unbalanced because of a low number of 8.0 to 12.0-in bass compared to the number 12.0 in and longer. Fishing for legal-sized bass will decline in 2006 due to the low number of bass present from the 2001 year class.

Seventeen redear sunfish were collected. They ranged in length from 4.2 to 8.2 in, averaging 6.5 in. Five were 7.0 in (quality size) or longer. Some redear are reaching 7.0 in during their third year of growth which is well above average in southeastern Indiana (Figure 3).

Both black and white crappie were collected in the survey. Sixteen black crappie ranged in length from 2.3 to 13.1 in. Six white crappie ranged in length from 2.1 to 6.9 in.

Six hybrid sunfish were collected. Most of these appeared to be naturally occurring crosses between bluegill and redear sunfish. They ranged in length from 5.5 to 7.8 in.

Three warmouth were collected, which are sometimes mistakenly identified by anglers as rock bass. They ranged in length from 6.4 to 8.0 in.

Three catfish were collected in two gill net lifts. Two were bullheads that measured 5.8 and 6.4 in. One was a channel catfish that measured 15.0 in. No channel catfish have been stocked by the DFW since 1995.

SUMMARY AND RECOMMENDATIONS

The purpose of this 2004 survey was to do a complete fisheries survey, following a spot-check survey in 1996. According to the results and to the BFPI, bluegill fishing at Manaugh Pond is fair. Bluegill growth is slightly better than the district average. Many of the fish under 6.0 in should have reached quality size in 2005. Green sunfish, redear sunfish, black and white crappie, hybrid sunfish, warmouth, and black bullhead also provide some panfishing opportunities.

Largemouth bass growth is slightly above average for southeastern Indiana. Fishing for legal-sized bass will decline in 2006 due to the low number of bass present from the 2001 year class. The 14-in minimum size limit should remain in effect to prevent over-harvest of largemouth bass, the primary source of predation on Manaugh's small panfish.

In general, it is not recommended to stock crappie into small impoundments because of their tendency to overpopulate and to develop stunted populations. Future surveys will continue

to monitor the crappie population. People are reminded that it is illegal for them to stock fish into public water.

As expected in a pond with so many other kinds of fish, channel catfish have not developed a self-sustaining population. Therefore, it is recommended that 200 channel catfish be stocked annually into Managh Pond by DFW personnel to provide catfishing opportunities. These annual stockings should continue as long as it is felt that channel catfish should be managed in this manner. Channel catfish should average at least 8 in in length when stocked to reduce predation by bass.

LITERATURE CITED

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Submitted by: Larry L. Lehman, Fisheries Biologist
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Approved by: _____
Brian M. Schoenung, Fisheries Supervisor
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Table. Stocking record to date by DFW personnel for Manaugh Pond.

Species	Number	Total Length (inches) Average	Range	Stocking Date
Largemouth bass	400	3.5	3.1-3.9	Nov. 20, 1995
Redear sunfish	1,000	1.6	1.1-2.0	Nov. 20, 1995
Channel catfish	200	8.4	3.8-13.0	Nov. 21, 1995
Bluegill	1,000	0.9	0.4-1.3	Nov. 27, 1995

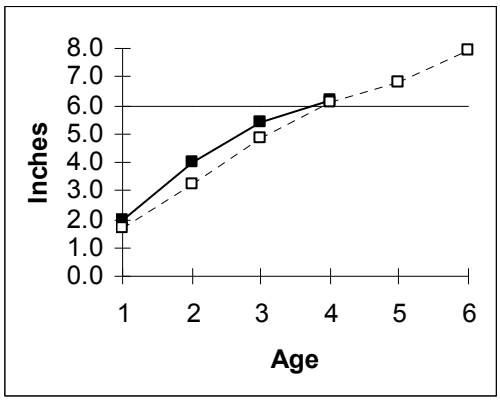

Figure 1. Manaugh bluegill growth from 2004 survey (solid line) compared to average bluegill growth observed in Fish Management District 8 impoundments (dotted line).

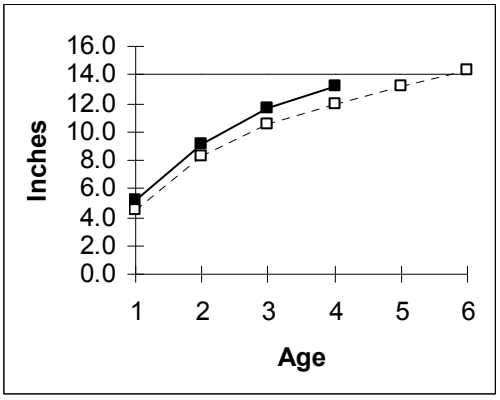

Figure 2. Manaugh largemouth growth from 2004 survey (solid line) compared to average largemouth growth observed in Fish Management District 8 impoundments (dotted line).

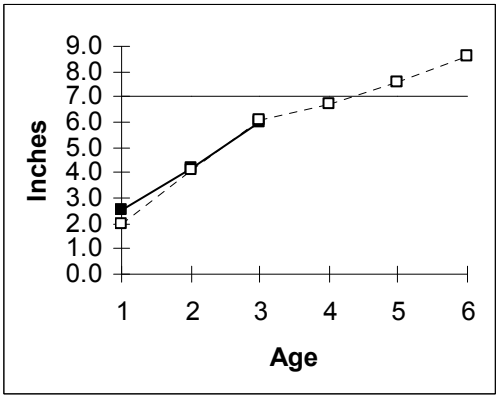

Figure 3. Manaugh redear sunfish growth from 2004 survey (solid line) compared to average redear sunfish growth observed in Fish Management District 8 impoundments (dotted line).